CB TUBE SUBSTITUTION DIRECTORY

381 REPLACEMENTS FOR THE MOST POPULAR CB TUBES

by STEPHEN DEDALUS, 12W5415

CB rigs have the most uncanny knack of dropping dead at just the wrong moment—such as when you are just about to take a long motor trip, or (horrors) when you are in a small town where the only service shop within 100 miles never even heard of CB.

The most common problem you will probably ever have with your CB rig is when a tube “goes west,” except, of course, you have a transistorized rig. Chances are, like the great majority of rigs today, yours is of the tube species.

Anyway, when the only 6U8A with a hundred miles goes up in smoke, what can be done about it? Or what happens if your base station pops a tube on a Sunday, or in the evening after the service shops close up? Or what happens if your local shop is open, if he knows about CB, but he is temporarily out of the one tube you need? Do you convert your CB rig into a boat anchor? Do you consider switching over to smoke signals as a means of communications? If that’s what’s troubling you, Bunky, S9 has the solution with this handy guide of almost 400 direct substitutions for popular CB tubes.

Now if “Old Nell” blows a tube you can swipe one from your TV or Hi-Fi set until another of the original type can be obtained at the nearest tube emporium. Whatsmore, if you’re stuck in the boondocks where the local service shop doesn’t carry the tube you need, you can shake the S9 CB tube substitution chart in the guy’s face and make his come up with something (anything!) that will get you back on the megacycles.

The substitutions on our chart are all direct substitutions and will require no rewiring work on your rig. Substitutions in parentheses are to be used only as a last resort, when all other possible tubes are unavailable; they just won’t give you anywhere near the performance of the original tube, but they will do a heckuva lot of a better job than the dud tube which you just threw angrily into the round file.

Tubes shown in bold face type are equal to, or in many cases better than, the tube which they replace. These tubes, on our list, include special industrial type tubes used in missiles, computers and other precision electronic gear. Their advantages usually include ruggedized construction, extra long life, and the fact that the tube will die suddenly when “it’s time to go,” rather than die away slowly giving you inefficient operation for months (as is usually the case with “standard” tubes). Be prepared to spend a few extra scheckles for some of these industrial version tubes,

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S9 CB TUBE SUBSTITUTION CHART

<table>
<thead>
<tr>
<th>ORIG.</th>
<th>REPLACE WITH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0B2</td>
<td>6074 6627</td>
</tr>
<tr>
<td>0C3</td>
<td>VR-105</td>
</tr>
<tr>
<td>5U4</td>
<td>U52 5AR4 5AS4 5AU4 5AW4 5AX4 5AZ4 5DB4 5R4 5T4 5V4 5W4 5Y3 5Z4 5931</td>
</tr>
<tr>
<td>6AK5</td>
<td>EF95 6AG5 6AH6 (6AJ5) 6BA6 6BC5 6BH6 6BJ6 6CB6 6CB5 6CE5 6CF6 6CY5 6EA5 6EV5</td>
</tr>
<tr>
<td>6AL5</td>
<td>D717 EB91 6EB5 5726 6058 6097 6663 7631</td>
</tr>
<tr>
<td>6AQ5</td>
<td>EL90 (6BF5) 6BM5 6005 6094 6095 6669</td>
</tr>
</tbody>
</table>

Always say you saw it in S9
TUBE SUBSTITUTION
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although many of the “four digit” types are popping up on the military surplus market at budget prices.

Tubes shown with a #-sign before their number are “Nuvistaplugs.” These are complete plug-in units circuits which consist of 2 Nuvistors in a cascode amplifier circuit. They are for replacement in the “front end” of the receiver section of a transceiver.

Tubes not indicated by parentheses or bold face type are “average” good replacements for the original types. They should approximate the original tube’s performance, but it would be best to replace them with the original types when convenient.

You will notice that some tubes have designations such as ECC81, EL84, X155, etc., etc. These are foreign types which are popular in Hi-Fi equipment in this country. In many cases they are excellent permanent replacements for tubes in the audio or modulation sections of a CB rig.

Some tubes, you will notice, are not listed here. This is because there just aren’t replacements for each and every single type of tube. If you have a CB rig which contains the following, it is suggested that you keep a spare around the shack: 6AN8, 6FM8, 12BW4, 6AZ6, 6AZ8, 6BJ7, 6EM5, 6CL8, 5763, 6BH7, 12AB5, and 6EQ7. There are others too, naturally. We suggest that you dig out your rig’s instruction manual and see what you’ve got.

You might find it handy to list the replacements for all of your rig’s tubes right on the inside cover of the instruction manual. This will save you the exasperating experience of trying to find this issue of S9 when you need it (we understand that some despicable people borrow S9’s and “forget” to return them).

Do not attempt “reverse” substitutions. That is, replacing dead tubes shown in the right hand column on our chart with tubes shown in the left hand column.

Editor’s note. The information contained in this article was compiled from material supplied by tube manufacturers. S9 Magazine presumes that this information is correct, but does not guarantee the degree of results which will be obtained by the application of the information. It must be remembered that slight electrical and mechanical differences may exist between the “original” tubes and the suggested substitutions.

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ANTENNAS
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and assume a smooth flat terrain and an average amount of atmospheric bending. Of course, terrain conditions and obstacles make each location a specific one. The above figures, as just mentioned, are related to flat terrain. If your average terrain is several hundred feet above your local surroundings you can expect an even greater range of transmission. On occasion, more often at night, atmospheric bending is very pronounced and transmission paths of fifty miles or greater do occur.

The estimates do point out the influence of antenna height on the range of transmission. Furthermore they indicate that with a minimum of equipment, reliable communications should be possible at least over the calculated range. With gain antennas, low-noise receivers, and a good location reliable results can be obtained beyond this figure. Under most circumstances, reliable results beyond twenty-five to thirty miles is hard to come by even under idealized conditions.

INTERVENING OBSTACLES
In metropolitan areas the influences of tall buildings, long bridges, and other large metallic surfaces are quite decided. Weak and strong signal locations develop at random because of reflections and the arrival of more than one signal at a given location.

There is some diffraction of radio waves over and around obstacles. Fig. 7 is an example of mountain-top diffraction. It might at first be expected that a high intervening hill would result in a complete black-out of communications at its rear. However, when a signal passes over a ridge there is some additional bending of the wavefront which causes it to dip down on the other side. Although the signal is reduced in its strength it is never the less present, usually at a useful level if within the signal line-of-sight range.

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